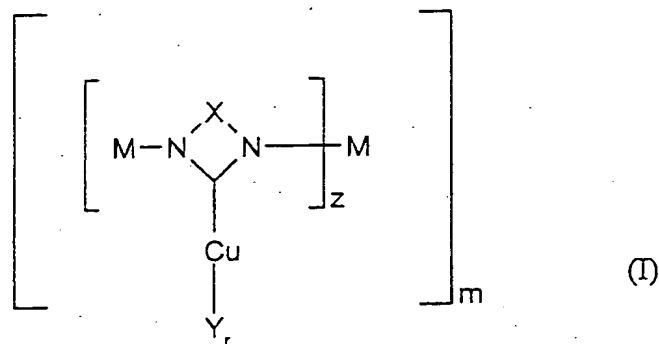


Patent claims

1. Process for the preparation of nitrodiphenylamines comprising reacting nitrohalogenobenzenes with anilines, a base and a catalyst of the formula

(I)



wherein

X is a 1,2-ethanediyl or 1,2-ethenediyl radical and

M can be identical or different and represents C₁-C₁₉-alkyl, C₇-C₁₉-aralkyl, C₆-C₁₈ aryl groups or C₆-C₁₉-heteroaryls having 1 to 3 nitrogen atoms, wherein two or more radicals M can be bridged in any desired manner by a covalent bridge or by an alkylidene bridge containing 1 to 4 carbon atoms or via an aryl or heteroaryl ring,

Y represents halogen or a trifluoroacetyl, trifluoromethanesulfonyl, nonafluorobutanesulfonyl, cyanide, acetyl, fluorinated acetylacetonyl, nitrate, arylsulfonyl, oxinate, phosphate, carbonate or tetrafluoroborate radical,

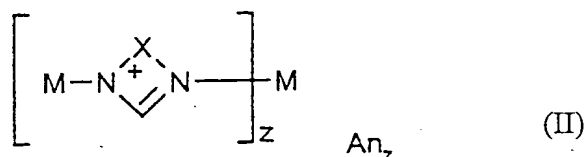
z represents 1, 2 or 3,

m represents integers from 1 to 6 and

r denotes 0, 1 or 2.

- 5 2. Process according to Claim 1, wherein the base is chosen from the group consisting of bicarbonates, carbonates, methanolates, ethanolates, isopropylates, tert-butanolates, phosphates, fluorides, silazanes, hydrides and acetates of lithium, sodium, potassium and caesium.

- 10 3. Process according to Claim 1, wherein the catalyst is prepared by deprotonation ligands of the formula (II)



with a base and subsequently reacting with a copper compound of the formula (III)



wherein M, X, Y, z and r defined the same as in formula (I), and wherein "An" is an anion of an acid having a pKa value of 3 or less.

- 20 4. Process according to Claim 3, wherein the catalyst of the formula (I) is prepared in situ.

5. Process according to Claim 1, wherein the catalyst is selected from the group consisting of (N,N'-dimethylimidazolidene)-copper(II) bromide, (N,N'-dicyclohexylimidazolidene)-copper(II) bromide, [N,N'-di(2,4,6-trimethyl)phenylimidazolidene]-copper(II) bromide, [N,N'-di(2-pyridyl)imidazolidene]-copper(II) bromide, (N-benzyl-N'-methylimidazolidene)-copper(II) bromide, {1,3-bis-[N-(N'-methyl)imidazolidene-methyl]-5-methylbenzene}-copper(II) bromide, {1,3-bis-[N-(N'-
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- methyl)imidazolidene-methyl]-5-methylbenzene}-copper[I] trifluoromethylsulfonate, {2,6-bis-[N-(N'-methyl)-imidazolidene-methyl]pyridine}-copper[II] bromide, {1,2-bis-[N-(N'-methyl)imidazolidene]-1,2-diphenylethane}-copper[II] bromide and {bis-[N-(N'-methyl)imidazolidene]methane}-copper[II] bromide. (N,N'-Dimethylimidazolidene)-copper(II) bromide and {1,3-[bis-(N-(N'-methyl)imidazolidenemethyl)-5-methylbenzene}-copper[II] bromide.
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6. Process according to Claim 1, wherein the nitrohalogenated benzenes are selected from the group consisting of 4-nitro-2-methylchlorobenzene, 4-nitro-3-methylfluorobenzene, 4-nitrochlorobenzene, 3-nitro-chlorobenzene or 2-nitrochlorobenzene, 4-nitrochlorobenzene, 4-nitrophenyltrifluoromethanesulfonic acid ester, 4-nitrophenylnonafluorobutanesulfonic acid ester, 4-nitrophenyl carbamate and 4-nitrophenyltrifluoromethylsulfonic acid ester.
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7. The process according to Claim 1, wherein the aniline is a o-, m- or p-substituted aniline.
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8. The process according to Claim 7, wherein the substituted aniline is selected from the group consisting of vinylaniline, 4-tert.-butylaniline, p-anisidine, o-anisidine, o-toluidine, p-toluidine, anthranilic acid methyl ester, o-aminobenzonitrile, p-aminobenzonitrile and 4-ethylaniline.
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9. Process for the preparation of aminodiphenylamine, wherein the nitrodiphenylamine produced according to Claim 1 is hydrogenated without isolation.